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ABSTRACT

The Fishbein and Ajzen model of attitude-behavior consistency was applied to 56 undergraduates learning to use a microcomputer. Two levels of context for this act were compared: the students' beliefs about themselves, and their beliefs about people in general. The results indicated that students' beliefs were good predictors of their behavioral intentions and they thought that learning to use a microcomputer would be significantly more helpful to them than to other people. The findings are congruent with the Fishbein and Ajzen model of attitude-behavior consistency. Examining attitudinal and normative beliefs about specific behaviors provides useful information on learning and technology. (15 references) (Author)

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Attitudes, Learning and Human–Computer Interaction: An Application of the Fishbein and Ajzen Model of Attitude–Behavior Consistency

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Andrew R. J. Yeaman

The Fishbein and Ajzen model of attitude-behavior consistency was applied to 56 undergraduates learning to use a microcomputer. Two levels of context for this act were compared: the students' beliefs about themselves and their beliefs about people in general. The results indicated that students' beliefs were good predictors of their behavioral intentions and they thought that learning to use a microcomputer would be significantly more helpful to them than to other people. The findings are congruent with the Fishbein and Ajzen model of attitude-behavior consistency. Examining attitudinal and normative beliefs about specific behaviors provides useful information on learning and technology.

Introduction

Research on human-computer interaction (HCI) has emphasized ease of use but understanding successful interaction means discovering what human characteristics are involved in learning to use (National Research Council, 1983, p. 114). Educational researchers investigating the issue of learner attitudes towards microcomputers have tended to concentrate on computer anxiety, a single dimension of a multidimensional attitude, and their instruments range from semantic differential scales (Williams, Coulombe & Lievrow, 1983) to self-constructed Likert scales (Maurer & Simonson, 1984). This one dimension of affect must be distrusted (Cambre & Cook, 1985; Howard & Smith, 1986). Beyond intuitive opinions of computer anxiety, such as those presented by Schneiderman (1986, p. 426), there needs to be better understanding of learner attitudes so that assumptions on the part of instructors do not prejudice the opportunities of students to learn. Fishbein and Ajzen's model of attitude-behavior consistency (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) can contribute to better understanding of attitudes and be more meaningful towards predicting behavior (Travers, 1982, p. 393). In conducting the investigation reported here a philosophical stance was invoked from the Fishbein and Ajzen theory of reasoned action: learning, as a behavior, is to some degree volitional and guided by the behavioral intent of the individual.

Background

Fishbein uses attitude to refer to "a learned predisposition to respond to any object in a consistently favorable or unfavorable way" (1967, p. 477). Evaluative beliefs about an object and the strength of those beliefs function together as the basis for predicting an individual's attitude and is expressed by this algebraic figure (Fishbein & Ajzen, 1975):

$$B \sim BI = [\sum_{i=1}^{n} B_i E_i] W_1 + [\sum_{i=1}^{m} NB_i MC_i] W_2$$

The first half of the equation describes the attitude towards the behavior in question. Overt behavior (B) and the intent to perform that behavior (BI) are a function of beliefs (B_i) about that behavior leading to consequences. The evaluation of those consequences is E_i and indicates the strength of those beliefs.

The logic of the second part of the formula runs parallel. It describes the influence of other people on the actor's normative beliefs and how much the actor is likely to accede to them in general. The normative belief, as perceived expectation of referent i (NB_i), is multiplied by the motivation to comply with referent i (MC_i). The two components of the formula are empirically weighted relative to intentions by regression (W_1 and W_2).

Hypotheses

The purpose of this study was to discover the relationships of beliefs to behavioral intent for people learning to use microcomputers. It was hypothesized that the beliefs of learners would correlate significantly with their behavioral intentions. This would test the Fishbein and Ajzen model of attitude-behavior consistency in the context of learning. The particular act, learning to use a microcomputer, is an area of recent research interest in education (Salomon & Gardner, 1986).

As a further test of the applicability of the model two levels of instructional context were investigated, specific and the global. The model could be refined relevant to learning by demonstrating that generality in context elements decreases the predictive validity of attitude measurement towards a specific target. A second hypothesis was generated and students were asked to report not only their beliefs about their learning to use a microcomputer but also their beliefs about people in general learning to use a microcomputer. It was hypothesized that the beliefs of learners about other people learning to use microcomputers would be significantly weaker than their beliefs about themselves learning to use microcomputers.

Method

Sample

Respondents were 56 undergraduates attending a state university campus.

Measurement and Procedures

The contents of the predictive components of the questionnaire were based on expert knowledge of the population and fitted the categories of the Fishbein and Ajzen model. Students had been observed and interviewed the previous semester for two ergonomic studies (Yeaman, 1985, 1986). Computer anxiety did not emerge as a salient belief for this population.

The students were asked to rate attitude statements on seven-point adjective bipolar scales. The questionnaires were given on the first day of the semester as the initial class activity and took five to seven minutes to complete. Prior to data analysis these bipolar scales were scored from plus three to minus three.

Results

Correlations above .8 indicated the data on the attitudes towards the act of learning to use a microcomputer were reliable and consistent. A lack of significant correspondence between the normative aspect and the behavioral intentions was anomalous but Fishbein and Ajzen's model of attitude-behavior consistency, as the theoretical base of this study, does not allow the influence of any component, though nonsignificant, to be discounted (Fishbein & Ajzen, 1976). The equation was computed for each level of context. The students' beliefs about themselves significantly correlated with the sum of behavioral intentions, $p<.001$. The students beliefs about other people also significantly correlated with the sum of behavioral intentions, $p<.01$. These results provided further support for the first hypothesis that the beliefs of learners would correlate significantly with their behavioral intentions.

To test the second hypothesis a comparison was made between the student beliefs about their own behavior and their beliefs about other people's behavior. A t test showed the personal beliefs were significantly higher ($M = 7.49$) than the people in general beliefs ($M = 6.86$), $t(54) = -2.11$, $p<.05$. This supported the second hypothesis, that the beliefs of learners about other people learning to use microcomputers are significantly weaker than their beliefs about themselves learning to use microcomputers.

Discussion

Student beliefs and behavioral intent

The students' beliefs were good predictors of their intent to behave, showing the Fishbein and Ajzen model worked well and supporting the first hypothesis. Scrutiny of the raw data indicated that, contrary to expectations, normative items were not always scored on the positive side of the scale. A negative normative relationship between wanting to comply and behavioral intention was also found by Walster (1986). The convergence between this investigation and Walster's suggests the influences of norms on learners and their motivation to comply with them could be an important area of investigation for research on learning and HCI.

The specificity of student beliefs

The students believed that learning to use a microcomputer would be significantly more helpful to them than to people in general. This particular finding augments the Fishbein and Ajzen model of attitude-behavior consistency by demonstrating that the predictive validity of attitude measurement towards a specific target is decreased by generality in instructional context.

Conclusion

The relationship of learners' attitudes to their learning behavior is often mistaken as a common sense issue and further empirical investigations are recommended. Evidence from theory-based research can provide better understanding. Examining attitudinal and normative beliefs, as related to specific behaviors, shows efficacy relative to the instructional aspects of HCI.

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